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$$\begin{aligned}
& -\frac{3ac}{b^2} \left\{ \frac{(b^{\frac{2}{3}} - c^{\frac{2}{3}})^{\frac{5}{2}} (a^{\frac{2}{3}} - b^{\frac{2}{3}})^{\frac{1}{2}}}{c^3 (a^3 - c^3)^2} \right\} - \frac{3ac}{2b^2} \left\{ \frac{a^{\frac{2}{3}} c^{\frac{2}{3}} - b^{\frac{4}{3}}}{a^3 c^3} \right\} \\
& \quad \times \left\{ \frac{(b^{\frac{2}{3}} - c^{\frac{2}{3}})^{\frac{1}{2}} (a^{\frac{2}{3}} - b^{\frac{2}{3}})^{\frac{1}{2}}}{a^3 - c^3} \right\} \left] \int_0^b (b^{\frac{2}{3}} - y^{\frac{2}{3}})^3 dy. \right. \\
\therefore V &= \frac{4}{35} \pi b^3 + \frac{8}{35} abc \sin^{-1} \left\{ \frac{b^{\frac{2}{3}} - c^{\frac{2}{3}}}{a^3 - c^3} \right\}^{\frac{1}{3}} - \frac{8}{35} b^3 \sin^{-1} \left\{ \frac{a(b^{\frac{2}{3}} - c^{\frac{2}{3}})}{b(a^3 - c^3)} \right\}^{\frac{1}{3}} \\
& \quad - \frac{16}{35} abc \left\{ \frac{(b^{\frac{2}{3}} - c^{\frac{2}{3}})^{\frac{5}{2}} (a^{\frac{2}{3}} - b^{\frac{2}{3}})^{\frac{1}{2}}}{a^3 (c^3 - a^3)^2} \right\} \\
& \quad - \frac{8}{35} abc \left\{ \frac{a^{\frac{2}{3}} c^{\frac{2}{3}} - b^{\frac{4}{3}}}{a^3 c^3} \right\} \left\{ \frac{(b^{\frac{2}{3}} - c^{\frac{2}{3}})^{\frac{1}{2}} (a^{\frac{2}{3}} - b^{\frac{2}{3}})^{\frac{1}{2}}}{a^3 - c^3} \right\}.
\end{aligned}$$

Cor. If $b=c$, $V = \frac{4}{35} \pi b^3$.

If $a=b$, $V = \frac{4}{35} \pi a^2 c$.

Also solved by *M. C. STEVENS*.

PROBLEMS.

18. Proposed by *J. M. BANDY*, Professor of Mathematics, *Elon College*, North Carolina.

If the ordinate ST of any point T on a circle

$$x^2 + y^2 = r^2$$

be produced so that $ST \cdot TP = r^2$, prove that the whole area between the locus of P and its asymptotes is double the area of the circle.

19. Proposed by *A. L. FOOTE*, No. 830, Broad Street, New York City.

A and B are in a circular room 30 feet in diameter, A being at the center and B at the circumference. B runs around at the rate of 600 feet per minute and A pursues him at the rate of 100 feet per minute. How long will the race last, and how far will each have traveled till B is caught.

Solutions to these problems should be received on or before July 1st.